

Abstract Submitted
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Relative Equilibria of Identical Point Vortices¹ HASSAN AREF²,
Department of Physics, Danish Technical University, Kgs. Lyngby, Denmark — The problem of finding relative equilibria of identical point vortices is classical and was considered by Kelvin and J. J. Thomson almost immediately after the model had been introduced by Helmholtz in 1858. At the time relative equilibria of vortices were proposed as models of atoms. Apart from the intrinsic interest of the problem, and its mathematical challenge, such equilibria have been used as models for stationary states of distributed vortices, and have been observed in rotating superfluids, most recently in spectacular images of BECs. Simple equilibria such as regular polygons (both open and centered) were found and analyzed in the 19th century. Double rings and more recently triple rings have been found analytically. However, the numerically known relative equilibria continue to greatly outnumber those that are analytically known. A major numerical exploration was undertaken by Campell & Ziff in 1978 resulting in what is known as the *Los Alamos Catalog*. We will explore the results in this catalog and what we have learned since then, and present details on the quest for an analytical understanding of these intriguing states.

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